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Desmos the proper generic name for the so-called Unonas of the Old World

WILLIAM EDWIN SAFFORD

In connection with his work on the American Annonaceae* the author has had occasion to look into the question of the types of the genera of this family. To his surprise he found that the genus *Unona*, based upon an American type by the younger Linnaeus (who is quoted by all botanists as author of the genus), is declared to be exclusively Asiatic. The various American plants assigned to this genus by Dunal in his admirable monograph of the Annonaceae have all been relegated to other genera; and the recently described *Unona panamensis* and *U. bibracteata* of Dr. B. L. Robinson are undoubtedly species of *Unonopsis*.† Concerning *Unona discreta* modern botanists are silent.

The original description‡ of this species, the type of the genus, is as follows:

"*discreta*. UNONA.
Peyricoboom. *Surinam*.
Habitat in Surinamo. C. G. Dalberg.
Arbor ramis virgatis, angustis, flexilibus.
Folia bifaria, alterna, petiolata, ligustrina, glabra, integerrima, digitalia.
Petioli brevissimi.
Pedicelli baccarum intra corollam, umbellati.
Flos Annonae, sed Fructus diversus, purpureus, sapidus, aromaticus, qui distinguit genus uti in Theobroma & Ambroma.

"*Annotatio*"

"Unona, Annona, Xylopia floris charactere simillimae, potius Gynandris associandae, cum stamina germini insideant."

In the above description the form of the carpels is not indicated, though they are described as stipitate and aromatic and borne in umbellike clusters on the receptacle (intra corollam).

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* See Jour. Washington Acad. Sci. 1: 118–120. S 1911.

† Fries, Robt. E. Beiträge zur Kenntnis der süd-amerikanischen Anonaceen, Kgl. Sv. Vet.-Akad. Handl. 34^5: 26. 1900.

‡ Linn. f. Suppl. 270. 1781.

The name *Unona* was taken up by Vahl,* who imagined that a certain East Indian plant was congeneric with Linnaeus's type. He redescribes *Unona discreta* without mentioning its type locality, but in his description he deviates somewhat from the original in characterizing the leaves as sericeous beneath, 1½ inches long, much attenuated, narrow, willowlike (salicina), and scarcely petioled. He does not describe the fruit nor indicate the number of seeds. He does, however, describe a second species, and he figures its fruit, which is elongate and moniliform or constricted between the seeds. The figure of the fruit of this species, *Unona discolor* Vahl, led to Dunal's subsequent error of describing the carpels of *U. discreta* Linn. f. as moniliform, for which he had no warrant. Dunal (Monographie de la famille des Anonacées 110. 1817) cites first Vahl and then Linnaeus f. He follows Vahl in describing the leaves of *U. discreta* as sericeous beneath; and for his description of the fruit he refers to Gaertner's figure of an Asiatic plant, *Uvaria monilifera*, which was considered as a possible synonym of the Surinam *Unona discreta*, but which in all probability is to be referred to *Unona discolor* Vahl. The latter plant, as we shall see, is regarded as a synonym of *Desmos chinensis* Loureiro (1790).

The limits of the genus *Unona* as treated by Dunal are very ill-defined. This was inevitable in many instances on account of the scant material at his disposal, in which fruits were often lacking. In the genus *Unona* he included plants of several distinct genera. His *Unona uncinata* is the fragrant *Artabotrys odoratissima* of India and Ceylon, the ripe carpels of which are not at all moniliform; his *Unona nitidissima* is an Australian plant belonging to the genus *Polyalthia;* his *Unona crassipetala*, a Guiana plant of which he did not see the fruit, is undoubtedly a species of *Guatteria;* his *Unona violacea* is a species of *Sapranthus* closely allied to *S. nicaraguensis* Seem.; his *Unona penduliflora* is the spicy xochinacaztli of the Mexicans (*Cymbopetalum penduliflorum* Baill.); and his *Unona acutiflora* and *U. xylopioides*, from South America, are both synonyms of St. Hilaire's *Xylopia grandiflora*.

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* Symb. Bot. 2: 63. 1791.

Hooker and Thomson, in their Flora Indica (1853), described a genus of Annonaceae which they called *Unona*, taking Linnaeus's name and ascribing the genus to him. Their genus, however, did not include his type, nor indeed any American species. In their revision of the Annonaceae they did most admirable work, arranging the genera according to the natural affinities of the plants and grouping them into tribes in the most logical manner. In their choice of generic names, however, they were most arbitrary. The genus which they called *Melodorum*, for instance, excludes the previously established type of Loureiro's genus *Melodorum* (1790). Their genus was based upon a section of plants which Dunal had called *Melodorum* and in which he erroneously had included Loureiro's *Melodorum*, together with Blume's division Melodorae of the genus *Uvaria* (Fl. Jav. 1828). They had seen *Melodorum fruticosum*, the type of Loureiro's genus, in the British Museum, and purposely excluded it from their genus of the same name. They had not ascertained its generic affinities, since they did not examine its flower; but they gave the comforting assurance that Loureiro's two species of *Melodorum* "will probably both be found to belong to well-known genera"; and they explain their use of the name *Melodorum* for a distinct genus by saying: "At all events his [Loureiro's] descriptions are not sufficient to identify the species nor to distinguish the genus; * it would therefore, we think, be manifestly unjust to Dunal and Blume not to retain their name."

In the same way the genus which they called *Unona* excludes all American species, even the type of the younger Linnaeus's genus *Unona*, though they cite Linnaeus as the author of the genus which they call *Unona*. This they state is "entirely an Asiatic genus" (Hook. f. & Thoms. Fl. Ind. 131. 1855), and it has continued to be regarded as such by subsequent writers, all of whom cite Linnaeus f. as authority, and the type of the genus as *Unona discreta*, an American tree. This tree we know to be endemic in the Dutch colony of Surinam, and we further know that it has slender, virgate branches, privetlike, or willowlike, two-ranked, short-petioled leaves, Annonaceous flowers, and aromatic purplish stipitate carpels radiating from the receptacles. It is not difficult with these indications to determine the identity of the type. It is either *Xylopia frutescens* Aubl. or *X. salicifolia* Dunal, more likely the former, both of which are commonly called peyrico, pegriko, or pegreko-boom in Surinam and are undoubtedly congeneric with *Xylopia muricata*, the type of the genus *Xylopia* as established by Linnaeus.*

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* This statement applies also to some of Linnaeus's types.

This being the case, the genus *Unona* falls, becoming a synonym of the genus *Xylopia*, and it is necessary to designate by a valid name the Asiatic genus which Hooker and Thomson called *Unona*. The earliest name for this genus is that of Loureiro:† *Desmos*, signifying a chain, and given to it on account of the fruits chained together in nodes. Two species were described by Loureiro, *Desmos cochinchinensis*, the type of the genus, which Dunal afterwards renamed *Unona Desmos*, and *Desmos chinensis*, which Vahl described the following year under the name *Unona discolor*.

If we recognize the validity of Loureiro's genus but widen his definition so as to comprehend in it the species of Hooker and Thomson's genus *Unona*,‡ certain changes in nomenclature become necessary. The following is a description of the genus.

DESMOS Loureiro

Sepals 3. Petals 6, in 2 series, valvate, nearly equal, flat, in some cases 3, from the suppression of the inner series. Stamens numerous, tetragonal-oblong or cuneate, the connective expanded above the dorsal oblong or linear-oblong pollen sacs into a subglobose or truncate hoodlike process. Torus slightly raised, truncate, flat, or somewhat concave at the apex, glabrous between the stamens, pilose between the carpels. Carpels indefinite;

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* Syst. Nat. 2: 1250. 10 ed. 1759.

† Flora Cochinchinensis 1: 352. 1790.

‡ From this genus I have found it necessary to remove *Unona latifolia* Hook. f. & Thoms. (= *U. Brandesana* Pierre), owing to the peculiar form of the connective of its stamens, which like that of the genus *Canangium* is produced into a long tapering point and not swollen and obtuse or flattened as in *Desmos*. This plant is undoubtedly congeneric with *Canangium odoratum* (Lamb.) King. Its synonymy is as follows:

Canangium Brandesanum (Pierre) Safford comb. nov.

Unona Brandesana Pierre, Fl. Forest. Cochinch. *pl. 19*. 1880; *Unona latifolia* Hook. f. & Thoms. Fl. Brit. Ind. 1: 60. 1872, not *Unona latifolia* Dunal, Monogr. Anon. 115. 1817, which is *Uvaria latifolia* Blume (*Melodorum latifolium* Hook. f. & Thoms. Fl. Ind. 116. 1855).

ovaries usually strigose-pilose. Ovules usually 1-seriate, forming a single column, sometimes subbiseriate. Style ovoid or oblong, recurved, with a longitudinal groove along its inner surface. Ripe carpels indefinite, either elongate and constricted between the seeds, or baccate and spheroid.

In restoring the generic name *Desmos* to its proper place the author retains the sectional division of the genus as proposed by Hooker and Thomson, changing the name of Section I, from Desmos to Eudesmos, and adopting the name Dasymaschalon in its original form for Section II. Both of these sections were used in Hooker's Flora of British India (1872), but a third section, Pseudo-Unona, was discarded in that work. In Sir George King's monumental work on The Anonaceae of British India (1893) he retains the first two sections under their original names but substitutes the name Stenopetalon for Section III., in which he places *Unona stenopetala*, *U. crinita*, and *U. desmantha* of Hooker together with *U. Wrayi*, described and figured by Hemsley in Hooker's Icones *pl. 1553*.

This section is undoubtedly composed of a heterogeneous group of plants and will have to be revised. Some of the species included in it differ so radically from the generic type, especially in the form of their ovaries and styles, that they must eventually be removed from the genus. Thus *U. desmantha* and *U. Wrayi* have nodding hairy swollen styles like those of the genus *Polyalthia*. The ovoid ovary of *U. stenopetala* terminates in an erect acute style, while the truncate ovary of *U. crinita*, as originally described and as figured by King, has a punctate stigma.

In the following review of the genus I have been much aided by the figures in Sir George King's Anonaceae of British India, above referred to, and especially by the citations of the author, which have facilitated reference to all the original authorities cited below.

DESMOS Lour. Fl. Cochinch. 1: 352. 1790. — *Unona* Hook. f. & Thoms. Fl. Ind. 130. 1855; not *Unona* Linn. f. Suppl. 270. 1781. "Nomen (Δεσμὸς, catena) ob fructus in nodos concatenatos."

Type: *Desmos cochinchinensis* Lour.

SECTION I. EUDESMOS.—Petals 6. Ripe carpels constricted between the seeds. Type: *Desmos cochinchinensis* Lour.

1. D. COCHINCHINENSIS Loureiro, Fl. Cochinch. 1: 352. 1790.
   Unona cochinchinensis DC. Prodr. 1: 91. 1824.
   Unona Desmos Dunal, Monogr. Anon.. 112. 1817; Hook. f. & Thoms. Fl. Ind. 134. 1855; Hook. f. Fl. Brit. Ind. 1: 59. 1872; King, Anon. Brit. Ind. 55. *pl. 73.* 1893.
2. D. CHINENSIS Loureiro, Fl. Cochinch. 1: 352. 1790.
   Unona discolor Vahl, Symb. 2: 63. *pl. 36.* 1791; Dunal, Monogr. Anon. 111. 1817; DC. Prodr. 1: 91. 1824; Roxb. Fl. Ind. 2: 669. 1824; Hook. f. & Thoms. Fl. Ind. 132. 1855; Hook. f. Fl. Brit. Ind. 1: 59. 1872; King, Anon. Brit. Ind. 56. *pl. 74.* 1893.
3. **D. elegans** (Thwaites) comb. nov.
   Unona elegans Thw. Enum. 398. 1864; Hook. f. Fl. Brit. Ind. 1: 58. 1872; King, Anon. Brit. Ind. 53. *pl. 69.* 1893.
4. **D. zeylanicus** (Hook. f. & Thoms.) comb. nov.
   Unona zeylanica Hook. f. & Thoms. Fl. Ind. 132. 1855; Hook. f. Fl. Brit. Ind. 1: 58. 1872; King, Anon. Brit. Ind. 54. *pl. 70.* 1893.
5. **D. Dunalii** (Wall.) comb. nov.
   Unona Dunalii Wall. Cat. 6425. 1852; Hook. f. Fl. Brit. Ind. 1: 58. 1872; King, Anon. Brit. Ind. 54. *pl. 70.* 1893.
6. **D. pannosus** (Dalz.) comb. nov.
   Unona pannosa Dalz. in Hook. Kew Journ. Bot. 3: 207. 1851; Hook. f. & Thoms. Fl. Ind. 135. 1855; Hook. f. Fl. Brit. Ind. 1: 58. 1872; King. Anon. Brit. Ind. 55. *pl. 72.* 1893.
7. **D. viridiflorus** (Beddome) comb. nov.
   Unona viridiflora Bedd. Icon. Pl. Ind. Or. 34. *pl. 158.* 1874; Hook. f. Fl. Brit. Ind. 1: 60. 1872; King, Anon. Brit. Ind. 56. *pl. 75.* 1893.
8. **D. dumosus** (Roxb.) comb. nov.
   Unona dumosa Roxb. Fl. Ind. 2: 670. 1824.; Wall. Cat. 6429. 1832; Hook. f. & Thoms. Fl. Ind. 131. 1855; Hook. f. Fl. Brit. Ind. 1: 59. 1872; King, Anon. Brit. Ind. 57. *pl. 76.* 1893.
9. **D. Lawii** (Hook. & Thoms.) comb. nov.
   Unona Lawii Hook. f. & Thoms. Fl. Ind. 132. 1855; Hook. f. Fl. Brit. Ind. 1: 59. 1872; King, Anon. Brit. Ind. 57. *pl. 77A.* 1893.

10. **D. praecox** (Hook. f. & Thoms.) comb. nov.
Unona praecox Hook. f. & Thoms. Fl. Ind. 136. 1855; Hook. f. Fl. Brit. Ind. 1: 60. 1872; King, Anon. Brit. Ind. 58. *pl. 79.* 1893.

SECTION II. DASYMASCHALON Hook. f. & Thoms.—Petals 3, in one series, the inner series lacking; ripe carpels constricted between the seeds. Type: *Desmos longiflorus.*

11. **D. longiflorus** (Roxb.) comb. nov.
Unona longiflora Roxb. Fl. Ind. 2: 668. 1824; Wall. Cat. 6419. 1852; Hook. f. & Thoms. Fl. Ind. 134. 1855; Hook. f. Fl. Brit. Ind. 1: 61. 1872; Kurz, For. Fl. Burm. 1: 35. 1877; King, Journ. As. Soc. Beng. **61**²: 46. 1892; Anon. Br. Ind. 58. *pl. 80.* 1893.

12. **D. dasymaschalus** (Blume) comb. nov.
Unona dasymaschala Blume, Fl. Jav. Anon. 55. *pl. 27.* 1828; A. DC. Mém. Anon. 28. 1832; Wall. Cat. 6421. 1832; Hook. f. & Thoms. Fl. Ind. 135. 1855; Kurz, For. Fl. Burm. 1: 36. 1877; Hook. f. Fl. Brit. Ind. 1: 61. 1872; Scheffer, Obs. Phyt. Anon. 6, Nat. Tijdschr. Ned. Ind. 31: 6. 1870; King, Journ. As. Soc. Beng. **61**²: 47. 1892; Anon. Brit. Ind. 59. *pl. 81.* 1893.

SECTION III. STENOPETALON.—Petals 6; ripe carpels baccate, not constricted between the seeds. Type: *Desmos stenopetalus* (Hook. f. & Thoms.).

13. **D. stenopetalus** (Hook. f. & Thoms.) comb. nov.
Unona stenopetala Hook. f. & Thoms. Fl. Ind. 136. 1855; Hook. f. & Thoms. Fl. Brit. Ind. 1: 60. 1872; Miq. Fl. Ind. Batav. 1²: 43. 1832; Kurz, For. Fl. Burm. 1: 35. 1877; King, Journ. As. Soc. Beng. **61**²: 40. 1892; Anon. Brit. Ind. 61. *pl. 85.* 1893.

14. **D. crinitus** (Hook. f. & Thoms.) comb. nov.
Unona crinita Hook. f. & Thoms. Fl. Brit. Ind. 1: 61. 1872; King, Journ. As. Soc. Beng. **61**²: 48. 1892; Anon. Brit. Ind. 61. *pl. 84.* 1893.

15. **D. Wrayi** (Hemsl.) comb. nov.
Unona Wrayi Hemsl. in Hook. Ic. Pl. III. **6**: *pl. 1553.* 1887;

King, Journ. As. Soc. Beng. **61^2**: 47. 1892; Anon. Brit. Ind. 60. *pl. 82*. 1893.

16. **D. desmanthus** (Hook. f. and Thoms.) comb. nov.

Unona desmantha Hook. f. & Thoms. in Hook. f. Fl. Brit. Ind. **1**: 61. 1782; King, Journ. As. Soc. Beng. **61^2**: 48. 1892; Anon. Brit. Ind. 60. *pl. 83*. 1893.

Washington, D. C.